

**REPLACEABLE, INTERCHANGEABLE EDGE AND GRIND PLATE  
SYSTEMS FOR GLIDING BOARDS**

**BACKGROUND**

[0001] Ski and snowboard edges are often damaged from sliding or grinding on metal rails, trees, benches and other obstacles. This occurs on a daily basis, as grinding and sliding have become very popular tricks among younger skiers and snowboarders. Ski resorts are now regularly putting up obstacles like these for skiers and snowboarders to do tricks on. These types of tricks destroy the edges. Dull edges do not cut into hard-packed snow very well. This is potentially dangerous and reduces the amount of control and life of the skis or snowboard. Once an edge is damaged or loses its sharpness, a complete ski or snowboard can be placed on a grinder to have the edges re-sharpened. This technique can only be used a few times before the ski or snowboard is useless. If an edge is damaged due to impact with rocks or other hard surfaces, it may not only be dulled, but may be bent or broken. This type of damage is costly to repair if it can be repaired at all.

[0002] Sharp edges do not slide or grind well, as they tend to dig into or catch on the object being slid upon. The invention is a replaceable edge system and grind plate system for skis and snowboards that directly addresses both problems.

[0003] Many different designs have been used to make skis and snowboards as usable and durable as possible. To date, these devices all fail to provide longevity and versatility to the edges. The edges of these devices are permanently attached to a ski or snowboard. The edges frequently become dull or damaged while being used. There has been no prior attempt to make skis or snowboards more usable and durable in regards to a replaceable edge designed for conventional skiing or snowboarding as well as for sliding or grinding.

[0004] There has been one prior attempt to make a removable edge for a snowboard. U.S. patent No. 5,462,304 to Nyman (1995) mainly claims a specific edge design that aids in making snowboarding easier and more predictable for beginners. This edge is specific to his design and is removable. Unfortunately his edge design is not

applicable to intermediate and advanced snowboarders. This is because the goal for these snowboarders is to have a board that is highly maneuverable or agile and does not have a tendency to lock the rider into a stable position for the sake of control. Nyman also greatly increases the edges surface area over that of conventional snowboard edge. This is a disadvantage to a proficient snowboarder because of the increased friction the edges create, resulting in slower acceleration and slower speeds for snowboarders. Nyman's three saw tooth surfaces and dual acting edge is not applicable to grinding/sliding because of its multiple raised edges that would be prone to catching when the board is being slid across obstacles. Finally, Nyman's edge is only removable in one piece.

[0005] As far as I am aware, there has also never been an attempt to create a grind plate system for skis or snowboards which protects the edges from the damages of sliding and grinding and which can be removed for conventional skiing and snowboarding.

#### SUMMARY

[0006] The present invention relates to skis, snowboards and other devices that use metal, plastic or composite edges to turn or control the device. The purpose of this invention is to provide skis, snowboards and similar devices with replaceable and interchangeable edge sections, and/or a fixed or removable grind plate.

#### BRIEF DESCRIPTION OF DRAWINGS

[0007] Fig. 1 is a side view of the ski or snowboard constructed in accordance with the invention.

[0008] Fig. 2 is a side view of a ski or snowboard constructed in accordance with the invention, showing the center edge section removed.

[0009] Fig. 3 is an exploded side view of the ski or snowboard of fig. 2.

[0010] Fig. 4 is a bottom view of the ski or snowboard of fig. 1.

[0011] Fig. 5 is a bottom view of the ski or snowboard of fig. 2, showing the center edge sections removed.

[0012] Fig. 6 is a front to back view of a ski or snowboard showing the grind plates attached to the sides.

[0013] Fig. 7 is a front to back view of the ski or snowboard of fig. 6, with the grind plates removed.

[0014] Fig. 8 is a front to back view of a ski or snowboard grinding or sliding sideways on an object.

[0015] Fig. 9 is a front to back view of a ski or snowboard with grind plates attached, grinding or sliding sideways on an object.

[0016] Fig. 10 is a side view of a ski or snowboard grinding or sliding sideways on an object.

#### REFERENCE NUMERALS IN DRAWINGS

- [0017] 1 top
- [0018] 2 tip
- [0019] 3 bottom
- [0020] 4 edge
- [0021] 4.1 removed edge section
- [0022] 5 tail
- [0023] 6 location of removable edge section
- [0024] 7 grind plates
- [0025] 8 represents an object a skier or snowboarder could grind or slide on, such as: trees, rails, benches etc...
- [0026] 9 arrow indicates movement of ski or snowboard from left to right
- [0027] 10 indicates movement of ski or snowboard into page (away from viewer)

#### DETAILED DESCRIPTION OF DRAWINGS

[0028] Fig. 1 is a side view of a ski or snowboard (e.g., a gliding board) 20 constructed in accordance with the invention. The ski or snowboard of the present invention is shown from a side view in its usable configuration in Fig. 1, and consists of a top 1, a tip 2, a tail 5, a bottom 3, and an edge 4.

[0029] Fig. 2 is a side view of a ski or snowboard 20 constructed in accordance with the invention, showing the center edge section removed. Fig. 2 is a side

view of the ski or snowboard in Fig. 1. This figure shows a section of edge 4, marked 4.1, removed from its location 6 on the ski or snowboard. The top 1, tip 2, bottom 3 and tail 5 are depicted for clarity. The edge sections 4.1 can be made of plastic, metal or composite materials and can be combined in any combination to the ski or snowboard's location 6. The edge sections are specifically designed to provide the optimal edges for conventional skiing and snowboarding, and, with a change of an edge section, the best edge for sliding or grinding. These edges can be easily removed and replaced for a given activity or due to edge damage.

**[0030]** The removable system can adapt to a manufacturer's specific design, allowing for it to be used on any current or future ski or snowboard design. Replaceable edge sections 4.1 will also provide manufacturers with new design options for their products. This system can also use metal, plastic or composite materials to provide the best edge or combination of edge sections for a given activity, such as rail sliding, or for a given snow conditions, i.e., ice, powder, etc.

**[0031]** Fig. 3 is an exploded view of Fig. 2. This figure clearly shows a section of edge 4, marked 4.1 removed from location 6. The top 1, tip 2 and tail 5 are indicated for clarity. The removed edge sections 4.1 can be made of plastic, metal or composite materials and can be combined in any combination to the ski or snowboard's location 6.

**[0032]** Fig. 4 is a bottom view of gliding board 20, in its usable configuration, as shown in Fig. 1. This figure shows tip 2, bottom 3, side edges 4 (in place in locations 6, see FIG. 3) and tail 5 to orient the viewer.

**[0033]** Fig. 5 is a bottom view of the ski or snowboard in Fig. 2, showing the edge sections removed. This figure shows sections of the side edges 4, marked 4.1 removed from their locations 6. The tip 2, bottom 3 and tail 5 are labeled for clarity. The edge sections 4.1 can be made of plastic, metal or composite materials and can be combined in any combination at the ski or snowboard's locations 6.

**[0034]** Fig. 6 is a front to back view of a ski or snowboard (e.g., a gliding board) 30 with grind plates 7 attached outside of its edges 4. The top 1, bottom 3 and side edges 4 are shown for clarity. The grind plates 7 can be made of plastic, metal or

composite materials. The grind plates are designed to provide protection to a ski or snowboard edge during sliding or grinding. These plates can be made of metal, plastic or composite materials. They can be either permanently attached to a ski or snowboard or made for easy removal and replacement. They are designed to complement the ski or snowboard's performance.

**[0035]** Fig. 7 is a front to back view of the ski or snowboard of Fig. 6, showing grind plates 7 removed from the ski or snowboard. The top 1, bottom 3 and side edges 4 are shown for clarity. The grind plates 7 can be made of plastic, metal or composite materials.

**[0036]** Fig. 8 is a front to back representation of a ski or snowboard grinding or sliding from left to right 9, on an object 8. This figure shows how the edges 4 come into contact with the object 8 that the ski or snowboard is grinding or sliding on. This is how the edges 4 become dull and damaged. The top 1 and bottom 3 of the ski or snowboard are shown for clarity.

**[0037]** Fig. 9 is a front to back representation of a ski or snowboard sliding or grinding from left to right 9 on an object 8. This figure shows how grind plates 7 work to protect edges 4 during sliding or grinding. The top 1 and bottom 3 are shown for clarity.

**[0038]** Fig. 10 is a side representation of a ski or snowboard grinding or sliding into the page (away from the viewer) 10, on an object 8. This figure shows why it is of particular interest to have removable edge sections 4.1. This is because during grinding and sliding, the edges 4 incur most damage to the center sections 4.1. It is also of particular interest to make the removed edge sections 4.1 out of different materials. This is because soft metals, plastics and composite materials will work best for grinding or sliding, while other hard metals, plastics and composite materials work best for conventional skiing or snowboarding. By having the ability to combine both into a single ski or snowboard, a user will get more usability, durability and specificity out of a single pair of skis or a snowboard.

**[0039]** Replaceable edges/sections and grind plates will provide riders with a new level of equipment durability as well as customization, allowing for one pair of skis

or a single snowboard to provide greater variety in performance and usability by being ideal for traditional skiing or snowboarding and ideal for sliding and grinding.